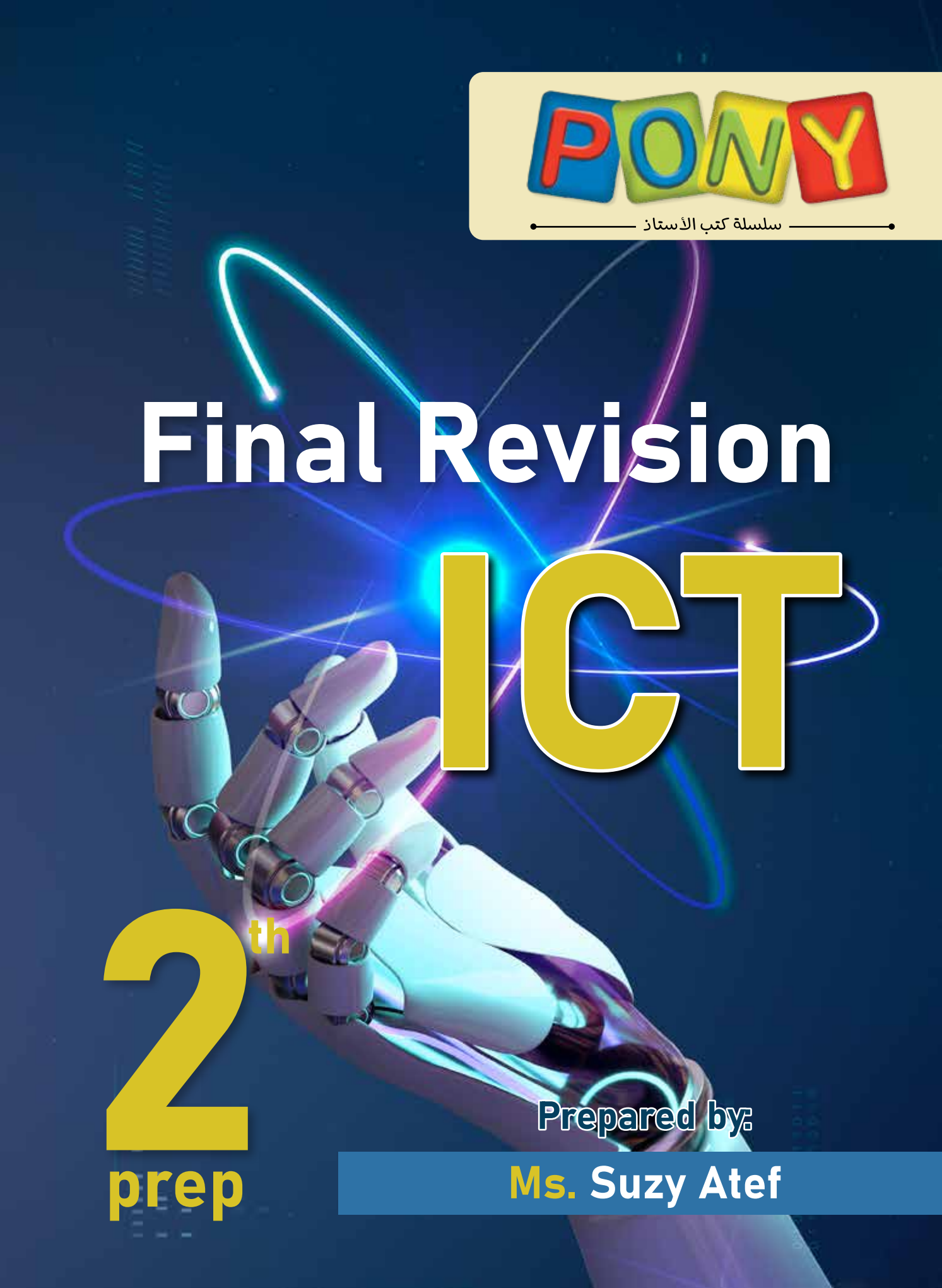
PONY

سلسلة كتب الأستاذ

Final Revision

ICT



2th prep

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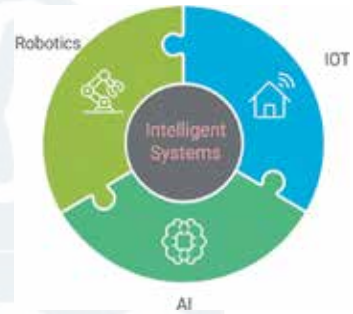
Summary Unit 1 Final Revision

Lesson 1 Intelligent Systems and Their Impact on Climate Change:

1. **Interconnected Intelligent Systems:** It combines three important technologies
   1. IoT: connects devices to the internet.
   2. AI: analyzes information and makes decisions like humans.
   3. Robotics: devices that move and perform tasks.



2. **Example on Smart Car Breakdown:**
   1. IoT: sends location and problem data to a service center.
   2. AI: analyzes the cause and suggests solutions.
   3. Robotics: repairs the car or requests a transport vehicle.

3. **Practical Applications in Daily Life:**
   - Smart Home: IoT controls devices, AI predicts needs, robots clean and assist.
   - School Robot: IoT connects to resources, AI answers questions, robot communicates.
   - Smart Farming: IoT monitors soil, AI analyzes, robots irrigate or spray pesticides.
   - Voice Assistant: IoT accesses info, AI understands speech.
   - Smart Car: IoT connects to maps, AI monitors hazards, robots control movement.

4 Impact on Climate Change:

Global Warming: IoT measures pollution, AI suggests solutions, robots plant trees/purify air.

Air Pollution: IoT monitors gases, AI identifies areas, robots use air purifiers.

Water Shortage/Drought: IoT measures soil, AI calculates water, robots irrigate efficiently.

Floods: IoT measures rainfall, AI sends warnings, robots assist in rescue.

Melting Ice: IoT monitors melting, AI predicts risks, robots collect data and support prevention.

Lesson 2 Advanced Cyber Threats

- These are not simple viruses, but planned attacks that exploit system vulnerabilities or user behavior.

1 Ransomware:

- A type of malware that encrypts files or locks devices and demands ransom money to restore access.
- It spread through suspicious emails, malicious links, fake websites, or untrusted downloads.

2 Advanced Social Engineering:

- Not a hack of systems, but a hack of minds
- It Tricks people into giving confidential information.

Spear Phishing: Personalized fake emails or messages targeting specific individuals or organizations

Pretexting: Attacker creates a fake story (e.g., pretending to be bank staff or technical support).

Baiting: Offering something attractive (like a free USB drive with malware).

1 Distributed Denial of Service (DDoS) Attacks:

- Attackers use many botnets (infected devices) to access a website at the same time.
- The website becomes slows down or disabled.
- This prevents legitimate (real) users from accessing it.

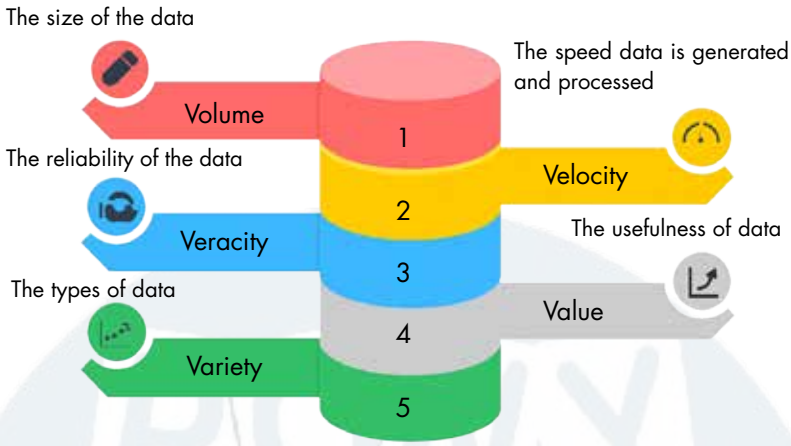
Lesson 3 Big Data

- Large and complex data that cannot be processed efficiently using traditional tools (like Excel).
- Sources of Big Data:

1. Internet-connected devices (IoT): Smart watches, refrigerators, cars collect usage, location, and activity data.
2. Social Media: Posts, comments, photos, videos, likes generate massive data (sometimes unreliable).
3. Financial Data: Payments, transactions, and stock trading record amounts, users, times, and locations.

4. Smart Devices: Phones, cameras, and smart home devices track location, apps, and interactions.
5. Digital Content: Videos, images, and audio generate data from views, comments, and shares.
6. Government Data: Population registers, censuses, taxes, surveys.
7. Geographic and Spatial Data: Satellites and GPS provide maps, traffic, and environmental data.

The 5Vs of Big Data:



Types of Big Data:

Structured Data: Organized in tables with rows and columns. (e.g., customer data, transactions).

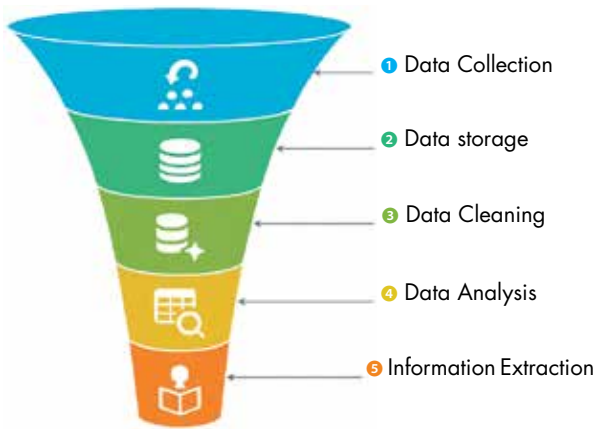
Unstructured Data: No clear structure; includes text, images, videos, social media posts.

Semi-Structured Data: A mix of both; such as emails (structured parts like sender, recipient / unstructured like message body).

Lesson 4 Big Data and Its Relationship to Artificial Intelligence

- Big Data is essential for AI to operate and learn.
- AI also helps process and analyze Big Data to extract value and insights.

Stages of Big Data Processing:



1. Data Collection: collecting massive data from multiple sources.
2. Data Storage: Saving data in large databases or cloud systems.
3. Data Cleaning: Removing errors, duplication, and incorrect data.
4. Data Analysis: Using AI and machine learning to analyze data.
5. Information Extraction: Valuable information is extracted from the analyzed d improvements.

Uses of Big Data:

1. Artificial Intelligence: Designing algorithms that mimic human intelligence (speech, vision, reasoning).
2. Machine Learning & Deep Learning: Training models to improve predictions (e.g., weather forecasting).
3. Network Monitoring & Cybersecurity: Detecting threats by analyzing network traffic patterns.
4. E-commerce: Big data is used for Understanding customer behavior, improving recommendations, adjusting prices, and boosting sales.

The Role of Big Data in AI:

1. Improving Accuracy & Performance:

   Training on diverse data improves generalization and reduces errors.
2. Enabling Advanced AI Applications:
   - Natural Language Processing (NLP): Requires massive text datasets for accurate language understanding (Such as GPT)
   - Computer Vision:

     Relies on large datasets of images/videos for recognition tasks.
   - Predictive Analytics:

     Identifies patterns in historical data for future predictions.
   - Discovering Hidden Insights:

     Reveals valuable patterns in fields like healthcare for diagnosis and treatment.

Summary Unit 2 Final Revision

Lesson 1 Principles of Designing Professional and Attractive Website Interfaces

User Experience (UX) Design: focuses on how people use an application or website, ensuring they can easily find what they need, feel satisfied while using it, and enjoy clear interactions.

Importance of UX Design:

- If the website/app is easy to use, the user will feel satisfied and return.
- If it is difficult to use, the user may abandon it forever.

Basic Principles of UX Design:

1. Ease of Navigation: Clear, simple menus make navigation quick and effortless.
2. Clarity: Information must be easy to understand.
3. Consistency: Maintain the same style across the website/app.

User Interface (UI) Design: The way the website/app/game appears visually:

- Are the colors attractive?
- Are the fonts easy to read?
- Are the buttons clear and usable?

Importance of UI Design: A beautiful, attractive interface creates a positive first impression; messy design discourages users.

Basic Principles of UI Design:

1. Colors: Choosing the right colors affects the user's mood.
2. Fonts: Should be legible and context-appropriate.
3. Layout: Organize interface elements logically, makes app or website easy to use.

Lesson 2 Web Page Format

1 From HTML to CSS:

- HTML describe the content of web pages.
- adding formatting to every page was time-consuming and costly.
- To solve this, W3C developed CSS which separates formatting from content.
- Css control the formatting of multiple web pages simultaneously.

2 Benefits of CSS:

- Time-saving: Formatting is placed once in a CSS file and applied to multiple HTML pages.
- Loading speed: The browser downloads the CSS file once and reuses it across linked pages.
- Ease of modification: Changing the CSS file updates the formatting of all linked pages automatically.
- Improved aesthetics: Pages become visually organized and attractive.
- Improved readability: Proper fonts and colors make content clearer.
- Separation of design and content: The CSS file controls appearance without modifying HTML structure.
- Responsive design: CSS adapts layouts for different screen sizes (computer, tablet, mobile).

3 Basic Structure of CSS: General Syntax:

- Selector: HTML element(s) to be styled (e.g., body, h1).
- Property: Formatting aspect to change (e.g., color, size).
- Value: How the property is changed (e.g., blue, 20px).

4 Ways to Add CSS to HTML:

- Inline CSS: Applied directly to an element.
- Internal CSS: Used to format individual HTML pages.
- External CSS (preferred): Best for large websites to unify the design and layout of their pages.

Lesson 3 My Digital Project for My School

1 Project Objective:

Design two web pages:

- School Data Page (contains school information and activities).
- Student Data Page (contains personal and contact information).
- Format both pages using External CSS for consistency.

2 Key Learning Points:

- Use of external CSS to unify the design across multiple pages.
- Clear HTML structure (header, sections, footer) improves readability.
- CSS enhances layout, colors, spacing, and visual appeal.
- Both pages share the same style.css file, ensuring consistency and reducing coding effort.

Lesson 4 Creating Your Website with the Help of Artificial Intelligence

1 Importance of Having a Website:

- Connect with the world and share ideas.
- Platform for self-expression (hobbies, talents, achievements).
- Showcase school projects professionally.
- Learn valuable digital skills for the future.

2 Role of Artificial Intelligence in Website Creation:

- Understands simple commands and builds professional designs.
- Saves time and effort (no coding required).
- Suggests creative ideas and adapts designs based on feedback.
- Transforms text commands (prompts) into a real website.

1 AI Tools for Website Creation:

- Wegic.ai: Easy to use, free plan, student-friendly.
- Jimdo Dolphin: Mobile-friendly, modern design, no technical skills needed.

2 Steps to Create a Website using Wegic.ai:

1. Log in and create an account.
2. Define website type, name, and content (school club, blog, hobbies, etc).
3. Choose design style and colors (2–3 max, harmonized).
4. Add essential pages (Home, About Us, Activities, Contact Us).
5. Insert content (text, images, galleries, contact forms).
6. Customize design, colors, fonts, and photos.

3 Tips for a Successful Website:

- Keep it simple, clear, and mobile-friendly.
- Use safe contact methods (email with permission, forms, QR codes).
- Avoid sharing personal information online.
- Update content regularly to keep the site fresh.

4 Activities & Projects:

- Plan your website (topic, pages, colors, content, audience).
- Create and adjust using AI tools.
- Present to classmates, gather feedback, and improve.
- Future projects: school magazine, digital art gallery, class project platform, science blog.

Questions Final Revision

1 Choose the correct answer from the following:

1. Systems that combine robotics, IoT, and AI are called.....
   - A. Traditional systems
   - B. Intelligent interconnected systems
   - C. Manual systems
   - D. Mechanical systems
2. The primary role of sensors in IoT is.....
   - A. Sending text messages
   - B. Repairing networks
   - C. Collecting and linking data
   - D. Manually operating devices
3. .....is considered an innovative solution to reduce waste at home.
   - A - Throwing waste in the streets.
   - B - Not caring about this order.
   - C - Increasing waste.
   - D - The use of robots to sort waste.
4. One of the major challenges facing the widespread implementation of smart systems.....
   - A - High cost and maintenance requirements.
   - B - Increased speed.
   - C - Reduced efficiency.
   - D - Not needed.
5. Which of the following is an example of ransomware?
   - A. A program that displays spam ads.
   - B. A program that encrypts your files and demands a ransom to decrypt them.
   - C. A program that cleans temporary files on your device.
   - D. A program that helps you organize your files.

6 What is the primary goal of a distributed denial of service (DDOS) attack?

A. Stealing user data.

B. Disabling a website or online service.

C. Disseminating false information.

D. Spying on user communications.

7 The term security updates means.....

A. Changing the appearance of the operating system.

B. Adding new features to the software.

C. Fixing security vulnerabilities in the software and hardware.

D. Accelerating the performance of applications.

8 Botnets used in DDOS attacks are called.....

A. Advanced artificial intelligence programs.

B. Superfast computers.

C. A group of secure servers.

D. A network of hacked devices that are remotely controlled.

9 .....is an example of Types of Big Data

A - Geometric Data B - Formal Data

C - Structural Data D - Pivotal Data

10 Which of the 5 Vs of Big Data indicate the reliability and quality of the data, as it may contain errors or inaccurate information? Data sometimes contains errors.

A – Volume B- Velocity

C – Value D- Veracity

11 What is the first stage of big data processing?

A- Data storage. B- Data cleaning.

C- Big data collection. D- Data analysis.

12 Which of the following uses of big data relies on understanding customer behavior and improving recommendations using advanced analytics?

A- Artificial intelligence.

B- Machine and deep learning.

C- Network monitoring and cybersecurity.

D- E-commerce.

13 Which of the following is an example of an advanced artificial intelligence application that relies on huge collections of images and videos to train its models?

A- Natural Language Processing (NLP)

B- Computer Vision

C- Big Data Collection

D- Task Automation

14 Big data helps machine learning algorithms automate tasks in areas such as:

A- Customer Service

B- Logistics

C- Financial Services

D- All of the above

15 What is meant by the principle of ease of navigation in user experience design?

a. That the colors are bright and cheerful on all pages.

b. That the user can easily and quickly access what they are looking for.

c. That the website contains the largest possible number of pages.

d. That the menus are placed differently on each page for a fresh experience.

16 What is meant by the principle of consistency in interface design?

a. That the shapes and colors of the buttons change on each page.

b. That the elements are displayed randomly to attract attention.

c. That there is variation in page design to avoid monotony.

d. That the interface maintains the same style and shape for the buttons and elements on all pages.

17 Which of the following examples illustrates the use of inconsistent colors in UI design?

A. Using simple color gradients.

B. Using complementary colors from the color wheel.

C. Using many bright, different colors randomly.

D. Using white as the primary color with a calm secondary color.

18 Which of the following is a fundamental principle in user interface (UI) design?

A. Making all buttons the same size and shape.

B. Choosing harmonious colors that are easy on the eyes.

C. Providing multiple ways to accomplish the same task.

D. Ensuring that text is unreadable.

19 To format the appearance of web pages, we use ……
a. HTTP b. DOC c. XLSX d. CSS

20 One of the benefits of CSS is:
A. Increased cost
B. Ease of modification and loading
C. An unsuitable appearance for the page.
D. Inability to control colors and fonts.

21 Predicting future weather using big data is an example of …… .
a. cybersecurity b. machine learning
c. NLP d. cleaning

22 Big data improves AI by reducing the …… .
a. benefit b. collection c. storage d. overfitting

23 If an app or website is easy to use, it leads to user …… .
a. Frustration b. Confusion c. Satisfaction d. Abandonment

24 Interface fonts should be …… .
a. complex and decorative
b. small and ornate
c. legible and appropriate to context
d. difficult to read

25 Removing errors and duplication is called data …… .
a. storage b. analysis c. cleaning d. extraction

26 big data storage usually happens in …… .
a. clouds b. servers c. USB d. a or b

27 …… creates algorithms that mimic human intelligence.
a. AI b. IoT c. E-commerce d. None of them

28 NLP applications require processing …… .
a. images b. text datasets c. maps d. audio only

29 A machine learning model trained on more data will usually …… .
a. learn slower b. be less accurate
c. be more accurate d. forget patterns

30 Predicting customer behavior with AI is called …… .
a. cleaning b. extraction
c. predictive analytics d. storage

31 The general syntax of CSS code is .....
a- selector {property:value}; b- value { property:selector};
c- property {value: selector}; d- selector{property}

32 One of the ways through which CSS formats can be incorporated into HTML code .....
a- Selector b- Responsive c- Href d- External CSS

33 The tag used to define the title shown in the browser's title bar is .....
a- <body> b- <div class>="" c- <title> d. section>

34 The tag <h2> Basic Information </h2> represent .....
a- The main title of the page
b- A subtitle of the Page
c- The bottom part of the page
d- It does not represent anything on the page

35 The W3C created CSS to solve the ..... problem in HTML.
a. content b. scripting c. security d. formatting

36 External CSS files are linked to HTML pages using the ..... tag.
a. <body> b. c. <style> d. <link>

37 The <title> tag defines the title that appears in the ..... bar.
a. address b. report c. browser d. navigation

38 The <body> tag contains the ..... that appears to the user.
a. metadata b. script c. content d. links

39 The <header> tag defines the ..... of the page or container.
a. bottom b. top c. middle d. side

40 The <footer> tag typically contains ..... or contact information.
a. main content b. images c. navigation d. copyright

41 What has made creating websites much easier now?
a. The increase in the number of programmers
b. The use of artificial intelligence technologies
c. The decrease in the price of computers
d. The disappearance of programming languages

42 An example of an AI tool that helps in building websites is .....
a. Paint b. Word c. Wegic.ai d. Calculator

43 A successful website should have a ..... design.
a. complex b. cluttered c. simple d. random

44 When using AI tools to build a website, do you need to be a programming expert?
a. Yes, you must be a professional.
b. Yes, you need some experience.
c. No, you don't need advanced programming experience.
d. Only if you want a complex website.

45 Which of the following is NOT considered contact information that might be added to a website?
a. Email b. Social media link
c. Phone number d. Designer's name

46 What does an "Image Page" add to your website?
a. Introductory text b. Contact information
c. Attractive visual elements d. Audio clips

47 Why is it important for prompts to be simple and clear?
a. To reduce the size of the website
b. To help AI better understand your request
c. To increase the number of visitors
d. To save time when publishing

48 It is important to use ..... contact information when creating websites.
a. personal b. public c. safe d. unlimited

49 The main goal of using AI in website building in our lesson is to .....
a. transform you into a professional web developer
b. introduce you to the capabilities of AI in website building
c. save money on programmers
d. create gaming websites only

50 What are the scripts we write to an AI tool to create a website called?
a. Code b. Descriptive Images
c. Prompt d. URL

2 Put (✓) or (✗) in Front of the following sentences:

1. Robots assist in agriculture by automatically watering plants. (....)
2. The primary function of artificial intelligence is to transmit data only. (....)
3. CSS can be used to change the font size and colour. (....)
4. Choosing colours and design at the beginning of work is not important. (....)
5. Intelligent systems are unable to cope with melting ice. (....)
6. AI is used in decision-making for implementation by robotics in intelligent systems. (....)
7. AI helps manage energy in smart homes by analyzing usage patterns and saving energy. (....)
8. Smart systems help reduce pollution from factories by shutting them down. (....)
9. Intelligent systems improve the efficiency of self-driving cars by increasing fuel consumption. (....)
10. One of the proposed smart solutions to address the drought problem is to rely solely on rain. (....)
11. User Experience (UX) only refers to the quality of services provided by websites and does not include applications. (....)
12. The principle of clarity in the interface requires presenting information in an easily understandable way. (....)
13. When you enter a restaurant to eat, the restaurant's decor, colors, and interface are (UX), while the quality of the food is (UI). (....)
14. Intelligent systems enable you to transform a regular hospital into a smart hospital by linking technical devices to IoT and using AI to diagnose diseases and assist patients. (....)
15. One of the drawbacks of using robots is the inability to provide emotional support for elderly caregivers like humans. (....)
16. Social engineering relies on exploiting vulnerabilities in technical systems. (....)
17. Sharing your personal information with anyone you trust online is safe. (....)
18. Tricking people into revealing their information is a social engineering technique. (....)

19 Ransomware permanently damages your device. (....)
20 Disrupting a website or internet service by sending massive amounts of spam is called baiting. (....)
21 Spear phishing targets the personal information of specific individuals. (....)
22 Ransomware encrypts files and demands a ransom to recover them. (....)
23 Detecting and removing malware from a computer is called Pretexting. (....)
24 Botnets used in DDoS attacks are compromised devices controlled by the attacker to Send massive amounts of fake requests to the targeted server. (....)
25 Ransomware is only spread via email, not through malicious websites. (....)
26 Big data is defined as a large and complex data set that cannot be processed efficiently using traditional technology such as Excel. (....)
27 Semi-structured data is a combination of structured and unstructured data, such as emails. (....)
28 Digital content (videos, images, audio content) that is downloaded or viewed does not generate big data . (....)
29 Devices connected to the Internet are considered a source of big data. (....)
30 Variety refers to the vast amount of data collected and stored . (....)
31 Financial data generated from electronic payments and banking transactions is considered unreliable data. (....)
32 Artificial intelligence technologies help humans process and analyze massive amounts of big data and extract value from it. (....)
33 The stages of processing and storing big data begin with cleaning the data first to ensure it is error-free before collection. (....)
34 Big data can be stored in large databases which can be located on servers or cloud systems . (....)
35 After analyzing big data, information is extracted that can be used to make strategic decisions. (....)
36 Natural Language Processing (NLP) models such as GPT do not need huge text datasets to learn, understand, and generate human language. (....)
37 Using decorative fonts frequently improves the clarity of text in UI design. (....)

38 Ease of use does not affect user satisfaction with the digital product. (....)

39 An external CSS file is inserted into HTML using the <link> tag. (....)

40 The browser loads the external CSS file only once and then uses the saved version. (....)

41 Internal CSS is often used in large websites to maintain constant styling. (....)

42 CSS language cannot be used to style the content of web pages. (....)

43 The importance of websites is limited to large companies only. (....)

44 The "About Us" page is used to display images of your activities. (....)

45 The <footer> element often contains copyright information. (....)

46 HTML is used to describe the appearance of web pages only. (....)

47 One of the benefits of CSS is that it is used to design the structure and content of the page. (....)

48 The <font> tag is still the preferred method for formatting text in modern HTML pages. (....)

49 Creating a website using AI requires you to write complex codes. (....)

50 A website's main menu with clear buttons is an example of good navigation design. (....)

Answers

1

1 b	2 c	3 d	4 a	5 b	6 b	7 c	8 d	9 c	10 d
11 c	12 d	13 b	14 d	15 b	16 d	17 c	18 b	19 d	20 b
21 b	22 d	23 c	24 c	25 c	26 d	27 a	28 b	29 c	30 c
31 a	32 d	33 c	34 b	35 d	36 d	37 c	38 c	39 b	40 d
41 b	42 c	43 c	44 c	45 d	46 c	47 b	48 c	49 b	50 c

2

1 T	2 F	3 T	4 F	5 F	6 T	7 T	8 F	9 F	10 F
11 F	12 T	13 F	14 T	15 T	16 F	17 F	18 T	19 F	20 F
21 T	22 T	23 F	24 T	25 F	26 T	27 T	28 F	29 T	30 F
31 F	32 T	33 F	34 T	35 T	36 F	37 F	38 F	39 T	40 T
41 F	42 F	43 F	44 F	45 T	46 F	47 F	48 F	49 F	50 T